Where discinoids were buried with both valves in conjunction they often suffered a lateral displacement due to compression, one valve projecting on one side, the other on the other. When such specimens are broken from the rock the fracture is likely to occur where the valves are in contact, causing them to be defective along opposite sides. This condition is apparently exemplified by the specimen shown by figures 1, 2, and 3, the brachial valve having slipped backward with the result that the brachial valve projected beyond the line of contact at the posterior end and the pedicle valve projected a corresponding distance at the anterior end. The evidence for this interpretation is as follows: The brachial valve, even in its broken condition extends considerably beyond what appears to be the true posterior margin of the pedicle valve. In addition to the specimen illustrated, however, we have the slab from which it was detached. This slab retains the impression of the pedicle valve and also, projecting downwards from it almost at right angles, a considerable strip of shell, which appears to be the marginal part of the overlapping brachial valve. This strip of shell, which surrounds the pedicle valve from part way up the left side to part way across the posterior end, where it is broken off, may, it is true, be a section of the pedicle valve itself, folded over at a sharp angle, but from the apparently small amount and general direction of the compression suffered this explanation is not so likely. In any event, the brachial valve is undoubtedly imperfect around the posterior margin and the idea conveyed by Whitfield's figures is highly misleading. They represent the specimen as it is, without showing that it is fragmentary, and they seem to bear out the generic diagnosis in a way that is most deceptive. They show, it is true, a shell that at first recalls some of the broader, more spatulate lingulas, but in *Lingula* it is the pedicle valve that projects and is pointed, and the brachial valve that is short and more blunt at the posterior end; here the relation is precisely reversed, the brachial valve is long and pointed, the pedicle valve short and rounded at the posterior margin. This is, to be sure, not at variance with what the description says, though it is at variance with what the description seems to imply—an agreement of some vital sort with *Lingula*. However this may be, the relation between the valves as they now exist in the specimen are in all essentials as they are shown in Whitfield's figure 3, the pedicle valve rounded across the posterior end, the brachial valve pointed and projecting well beyond it. Such, one can say with almost perfect safety, could not possibly be the original condition of any brachiopod shell and the fact affords clear evidence, if only evidence of an abstract character, of serious imperfections in the specimen. It is conceivable that in shells constructed on the discinoid plan the upper valve might be so oblique that its apical point projected beyond the pedicle valve, but the margins of the two valves would of necessity have the same outline.

The original of Whitfield's figures 5 and 6 is a brachial valve which has a depressed convex shape and a nearly circular outline. It is apparently unbroken around the posterior margin. This specimen is not unfairly represented by Whitfield's figure 6, but his figure 5, which is a side view, seems to be faulty. It represents the convexity as too low and the slope to the posterior margin as not sufficiently abrupt. The specimen itself gives indication of having been flattened, for it is dissected by numerous cracks. Whether on account of this, or of other imperfections, the exact location of the beak is hard to determine. It is perhaps more clearly seen if the valve is viewed from the side than if it is viewed from above, and is recognizable more by an abrupt change of direction in the outline from a gentle curve to a straight, steep descent backward than by a pointed prominence on the surface. Thus determined the apex appears to be a little posterior to the point of greatest convexity and to be situated some little distance up from the posterior margin (about 3 mm.). When the valve is viewed from above, however, the beak through foreshortening appears much more marginal.

Whitfield's figure 7 represents the original specimen fairly well, although it fails to allow sufficiently for the breakage that is clearly indicated at the right side, so that the true shape was more nearly circular than it is represented. The beak, as shown in the figure, is probably the true beak, but, as the legend states, the shell is folded inward at the anterior end so that the beak is not marginal as one might infer from the figure, but well up from the margin. Perhaps even more of the infolded shell was originally present than is actually uncovered. At all events in shape this specimen seems to have been very similar to the one last considered, for the convexity was low and the beak situated posterior to the highest point and not very far from the posterior margin, though it was by no means marginal.

Figure 8 of Whitfield represents the specimen that Hall doubtfully referred to *Lingula exilis*. The specimen is too imperfect to yield any facts relative to the genus *Lingulidiscina*, but it is without much doubt a discinoid shell instead of a *Lingula* and it may well belong to the same species as Whitfield's other types.

In addition to the specimens actually figured by Whitfield there was sent to me as part of the typical material another brachial valve whose characters appear to have been essentially like those of the brachial valves already considered. The outline was circular, the convexity low, the beak strongly posterior but not marginal. Finally the borrowed material includes one of the type specimens of *Orbiculoidea doria* (that shown by figure 22 of Plate 2, Hall). The label is inscribed "*Lingulidiscina exilis*, a type of *Discina doria* Hall." Whether this expresses Whitfield's opinion or some other I do not know. In any event according to my conception of the species as derived from Whitfield's specimens, the brachial valve of *Lingulidiscina exilis* must have approximated very closely that of *L. doria*, though on a larger scale, and the specimen of *L. doria* loaned to me may well be a young specimen of *L. exilis*.

Only two pedicle valves are included among Whitfield's typical specimens, both of them figured. One of them is fairly well shown by his figure 3, though as the projecting part of the brachial valve is figured with it, the reader may fail to appreciate that the pedicle valve is broadly rounded at the posterior end and is very nearly symmetrical with a generally elliptical outline, a fact to which allusion has already been made. The major part of the valve is essentially flat; the margins are slightly upturned, producing a gentle concavity, but the parts of the shell adjacent to the pedicle scar are strongly introverted. The details of this scar are obscured. The second pedicle valve (shown by figure 4 as a mold of the exterior) corresponds closely in character with the first one, aside from being more circular in outline. It is gently concave over most of its extent owing to upturned margins, and has a large, deeply introverted pedicle scar. Whether the pedicle had an exit through an oblique tube as in *Orbiculoidea* or through an open fissure as in *Oehlertella* is not clearly shown by either specimen. For my own part I am strongly of the opinion that it issued through an inclosed tube, partly because no marginal slit has been observed, but more especially because an intense deflection of the surface at the locus of the pedicle, such as we have in these shells would more naturally accompany an oblique tube than an open slit. Incidentally, the specimen last described is associated with its fellow valve, which, however, is highly imperfect. Without showing any characters clearly it tends to corroborate the characters ascertained from the more perfect brachial valves already commented on.

The superficial characters of these shells are to some extent a matter of surmise. It is perhaps remarkable that all the brachial valves appear nearly smooth whereas the pedicle valves show the thin, widely spaced, concentric lirae so characteristic of *Orbiculoidea.* All the specimens are more or less macerated or exfoliated, but there is no apparent reason why from this cause the one valve should not be defaced equally with the other. It is possible that the lower or pedicle valve retained these markings while the brachial valve which protected it, but which was itself liable to all the chances of abrading and corroding substances, might have lost them. On the other hand, I recall having seen orbiculoideas which showed a similar variation in sculpture. In both valves the central region was marked in the usual manner by spaced concentric lirae, but these gradually became obsolete toward the margins, deteriorating into feeble rounded striae of growth. The obsolescence of the sculpture was commonly more pronounced on the brachial valve than on the pedicle valve. If among these lingulidiscinas several that retain the upper and lower valves in conjunction have the one almost smooth and the other sharply striated, others, especially Hall's specimen of *Lingula exilis,* are not without suggestion of the characteristic *Orbiculoidea* sculpture in a defaced condition.

To sum up the conclusions that seem to follow from my observations on the typical specimens of *Lingulidiscina:* The outline is as a rule almost circular, though elongated specimens occur in which the length is decidedly greater than the width.

The brachial valve was depressed-convex, with the beak obscure but in position posterior to the highest point and not far from the margin in that part, though obviously by no means marginal. The configuration is in general like that of *Orbiculoidea;* it may be somewhat extreme in the lowness of the arch and in the excentric position of the apex, but it is not without parallel among specimens that seem properly to belong in that genus.

The pedicle valve also appears to be constructed like that of *Orbiculoidea.* My observations do not establish this, although none bears evidence to the contrary. The pedicle slit is here especially in mind; the configuration otherwise is not quite typical, for whereas in *Orbiculoidea* the pedicle valve is gently convex rising to a point in the central part (see Hall and Clarke's figure on p. 125), in these shells the pedicle valve is faintly concave, though it has a strong deflection in the posterior quadrant if the pedicle scar is taken into account. In configuration this type would thus appear to be somewhat intermediate between *Orbiculoidea* and *Roemerella,* though it is much more like *Orbiculoidea.* On the other hand, many recognized orbiculoideas have a pedicle valve that is almost flat, or even faintly concave, whether by nature or by accident it is hard to tell. Few that have come under my observation are so strongly arched as Hall and Clarke's diagrammatic figure.

The sculpture is in a general way that which is common to most Paleozoic discinoids. That of the pedicle valve appears to be perfectly normal but that of the brachial valve, if not defaced, has more or less degenerated from widely spaced sharply elevated concentric lines into relatively inconspicuous fascicles of growth lines.

From the facts as they appear to me I would not hesitate to describe Whitfield's shells as representing a somewhat unusual species of *Orbiculoidea.*

## ZOOLOGY.—*A new species of the nemic genus* Syringolaimus*; with a note on the fossorium of nemas.*[1] N. A. COBB, U. S. Department of Agriculture.

The writer's collection of Syringolaims shows them to live on temperate and tropical sea coasts in many parts of the world. Among other places, his Syringolaims (1888–1927) represent the East Indies (Larat), Polynesia (Noumea, Hawaii), the Atlantic and Pacific Coasts of Panama, the Atlantic Coast of the United States, and the English Channel. The manuscript record of these collections contains full descriptions of a number of new but unpublished closely related species.

Our knowledge of this genus has increased but little since de Man described the type species, his *S. striatocaudatus.* The present publication adds information concerning (1) the labial papillae, (2) the amphids, (3) the phasmids (?), (4) the fossorium, (5) the intestine, (6) the male gone, (7) the food habits, and (8) the geographic distribution.

**Syringolaimus smarigdus**, n.sp. $\frac{6.1}{2.7} \cdots \frac{12.}{/2.9} \cdots \frac{20.}{\underline{3.2}} \cdots {}^{15}\frac{50.}{3.9}{}^{15} \cdots \frac{82.}{2.6} > 0.76\,\text{mm}$ The transparent, colorless cuticle is traversed by plain transverse striae very difficult, or almost impossible, to resolve, which are not altered on the lateral fields. Faint traces of wings occur, beginning near the head and ending on the tail. Longitudinal "striae," due to the attachment of the musculature, are visible in nearly all regions of the body. No series of pores have been seen in the cuticle. Of the highly mobile lips there probably are three, but they are no more than sub-distinct, and are small and somewhat rounded. The pharynx is armed in front with three duplex (somewhat lobster-claw-like), in profile somewhat inverted-comma-shaped, subacute odontia (Fig. 1, *mnd)* having an outward throw of about 180°, a movement seen on more

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[1] Embodying investigations made largely at the Laboratories of the U. S. Bureau of Fisheries at Woods Hole, Mass. Received February 25, 1928.